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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,643	11/10/2003	Alfred D. Ducharme	C1104-7061.20	4766
37462	7590	12/16/2004	EXAMINER	
LOWRIE, LANDO & ANASTASI RIVERFRONT OFFICE ONE MAIN STREET, ELEVENTH FLOOR CAMBRIDGE, MA 02142			NEGRON, ISMAEL	
			ART UNIT	PAPER NUMBER
			2875	

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/705,643

Applicant(s)

DUCHARME ET AL.

Examiner

Ismael Negron

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36-40 is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-26, 28-35, 41 and 42 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 27 and 42 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>See Continuation</u> . | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> . |

DETAILED ACTION

INTERFERENCE

1. Acknowledgment is made of applicant's attempt to start Interference proceedings, however, such request has been considered improper for not meeting the requirements set forth in § 41.202(a)(2) thru 41.202(a)(4) and 41.202(a)(6) of the Consolidated Patent Rules (as effective September 13, 2004), a copy of which is included with this Action.

Title

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: **Lighting Apparatus for Emulating Incandescent Light Sources.**

Abstract

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology

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often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because it repeats information given in the title. Correction is required. See MPEP § 608.01(b).

The Examiner suggests lines 1 and 2 of the abstract to read: "~~A lighting fixture for producing a beam of light having a prescribed luminous flux spectrum. In one example,~~ the A lighting fixture comprises including a plurality of groups of."

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "**104**" has been used to designate "*Planckian locus*" (page 2, line 21), "*line*" (page 2, line 24) and "*black body curve*" (page 28, line 18). In addition, note the following:

- reference character "**300**", used to designate "*lighting fixture*" (page 14, line 19) and "*light module*" (page 15, line 18);

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- reference character “**364**”, used to designate “*lighting fixture*” (page 15, line 5) and “*lighting module*” (page 17, line 15);
- reference character “**368**”, used to designate “*conductive sleeve*” (page 17, line 5) and “*conductive aluminum sleeve*” (page 18, line 6);
- reference character “**378**”, used to designate “*enclosure plate*” (page 17, line 6) and “*disk-shaped enclosure plate*” (page 18, line 7);
- reference character “**2020**”, used to designate “*processor*” (page 23, line 25) and “*processor settings*” (page 24, line 2);
- reference character “**2030**”, used to designate “*control system*” (page 24, line 10) and “*controller*” (page 27, line 25);
- reference character “**1201**”, used to designate “*spectrum*” (page 38, line 8) and “*un-filtered*” (page 39, line 14); and
- reference character “**1301**”, used to designate “*spectrum*” (page 38, line 9) and “*un-filtered*” (page 39, line 14).

The applicant is advised that the reference characters must be properly applied, with no single reference character being used for two different parts or for a given part and a modification of such part. See MPEP §608.01(g).

Applicant is further advised that this action only exemplifies the objections to the drawings, applicant's cooperation is requested in correcting all the occurrences of the cited, or any other errors of which applicant may become aware in the specification.

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5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6. The disclosure is objected to because of the following informalities: line 7 or page 42 should read "~~fighting~~ lighting fixture (5000) in FIGS. 5a and 5b. The lighting fixture can comprise a bottom".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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7. Claims 15-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. The term "substantial energy" in claim 15 (line 8 and 9) is a relative term which renders the claim indefinite. The term "substantial energy" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In addition, note claims 19, 20 and 25, rejected for the same reasons.

The applicant is advised that for Prior Art rejections the Examiner assumed the phrase "*having substantial energy only within a contiguous bandwidth of less than about 200 nanometers*" (Claim 15, lines 8 and 9) to mean having energy within the claimed bandwidth. The same assumption was used in interpreting claims 19, 20 and 25.

9. Claims 16-27 are rejected for their dependency on rejected claim 15.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-5 and 8-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over AMERSON et al. (U.S. Pat. 6,379,022).

AMERSON et al. discloses an illumination device having:

- **a plurality of light emitting diodes (LED) groups (as recited in claims 1 and 15), Figure 4, reference numbers 402 and 404;**
- **each LED group being configured to emit light having a distinct luminous flux spectrum (as recited in claims 1 and 15), column 2, lines 62-68;**
- **a controller (as recited in claims 1 and 15), inherent as evidenced by column 2, lines 59-61;**
- **the controller being configurable to supply selected amounts of electrical power to the LED groups (as recited in claims 1 and 15), column 3, lines 10-14;**
- **the LED groups cooperating to produce a composite beam of light having a prescribed flux spectrum (as recited in claims 1, 15 and 22 and 15), column 3, lines 1-14;**
- **at least two of the LED groups having different quantities of LED (as recited in claims 5 and 21), column 3, lines 7-9;**
- **each of the LED groups including a plurality of LED (as recited in Claim 8), column 3, lines 7-9;**

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- **an optical assembly (as recited in Claim 9), inherent as evidenced by column 3, lines 1-5;**
- **the optical assembly collecting the emitted light and projecting a composite beam (as recited in Claim 9), inherent as evidenced by column 3, lines 1-5;**
- **the luminous flux spectrum of the light emitted by each of the LED groups having a spectral half-width of less than about 40 nanometers (as recited in Claim 13), as seen in Figure 5;**
- **the peak flux wavelength of each of the LED groups being spaced less than about 50 nanometers from the peak flux wavelength of another of the LED groups (as recited in claims 14 and 24), as seen in Figure 5;**
- **the spectral half-width of each of the plurality of LED groups being less than about 40 nanometers (as recited in claims 14 and 24), as seen in Figure 5;**
- **the composite beam of light having energy within a contiguous bandwidth of less than about 200 nanometers (as recited in Claim 15), as seen in Figure 5;**
- **the composite beam of light having energy within a contiguous bandwidth of less than about 600 nanometers (as recited in Claim 19), as seen in Figure 5;**

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- **the composite beam of light having energy within a contiguous bandwidth of less than about 550 nanometers (as recited in Claim 20), as seen in Figure 5;**
- **the LED groups being at least four groups (as recited in Claim 22), column 2, lines 66 and 67; and**
- **the composite beam of light having energy within a contiguous bandwidth of less than about 150 nanometers (as recited in Claim 25), as seen in Figure 5.**

AMERSON et al. discloses all the limitations of the claims, except:

- the composite beam of light having a prescribed luminous flux spectrum having a normalized mean deviation across the visible spectrum of less than about 30% relative to the luminous flux spectrum of a beam of light produced by a predetermined light source to be emulated (as recited in claims 1, 3, 4, 17 and 18);
- the prescribed luminous flux spectrum being reached when the controller supplies a maximum electrical power to the LED groups (as recited in claims 2 and 3);
- the predetermined light source to be emulated being incandescent lamp having a filter (as recited in claims 4 and 16);
- the composite beam of light having a prescribed luminous flux spectrum having a normalized mean deviation across the visible spectrum of less than about 25% relative to the luminous flux

- spectrum of a beam of light produced by a predetermined light source to be emulated (as recited in Claim 10);
- the composite beam of light having a prescribed luminous flux spectrum having a normalized mean deviation across the visible spectrum of less than about 25% relative to the luminous flux spectrum of a beam of light produced by a predetermined light source to be emulated (as recited in Claim 11);
 - the composite beam of light and a predetermined light source to be emulated being within 5 db of each other across the visible spectrum when the controller supplies maximum electrical power to the LED groups (as recited in claims 12 and 26); and
 - the predetermined light source to be emulated being incandescent lamp having a plurality of filter (as recited in Claim 18).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to configure the illumination device of AMERSON et al. to produce the specific ranges (as recited in claims 1-4 and 10-12) featured by the instant invention, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only ordinary skill in the art. *In re Aller*, 105 USPQ 233. In this case, the patented device of AMERSON et al. is specifically designed to reproduce any flux spectrum as required for a particular application (see column 2, lines 28-37 and column 3, lines) or to simulate the flux spectrum of a given illumination source (see column 3, lines 14-16). Adjusting

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the LED groups to closely match the flux spectrum of the light source to be emulated would have flown naturally to one of ordinary skill in the art, as evidenced by Figure 6 of AMERSON et al..

11. Claims 28-35 and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over AMERSON et al. (U.S. Pat. 6,379,022).

AMERSON et al. discloses an illumination device having :

- **the device being suitable for use as a part of a lighting fixture (as recited in claims 28 and 41),** column 2, lines 28 and 29;
- **a plurality of groups of light-emitting devices (as recited in claims 28 and 41),** Figure 4, reference numbers 402 and 404;
- **each group being configured to emit light having a distinct luminous flux spectrum (as recited in claims 28 and 41),** column 2, lines 62-68;
- **at least two of the groups including different quantities of devices from each other (as recited in claims 28 and 41),** column 3, lines 7-9;
- **a controller (as recited in claims 28 and 41),** inherent as evidenced by column 2, lines 59-61;
- **the controller being configurable to supply selected amounts of electrical power to the groups (as recited in claims 28 and 41),** column 3, lines 10-14;

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- **the groups cooperating to produce a composite beam of light having a prescribed luminous flux spectrum (as recited in claims 28 and 41), column 3, lines 1-14;**
- **the groups being free of a filter that substantially changes the luminous flux spectrum of its emitted light (as recited in claims 29, 32 and 43), inherent;**
- **the LED groups being at least four groups (as recited in Claim 33), column 2, lines 66 and 67;**
- **each of the LED groups including a plurality of LED (as recited in Claim 34), column 3, lines 7-9;**
- **the peak flux wavelength of each of the LED groups being spaced less than about 50 nanometers from the peak flux wavelength of another of the LED groups (as recited in claims 35 and 41), as seen in Figure 5;**
- **the spectral half-width of each of the plurality of LED groups being less than about 40 nanometers (as recited in claims 35 and 41), as seen in Figure 5;**
- **the LED groups being at least three groups (as recited in Claim 41), column 2, lines 66 and 67.**

AMERSON et al. discloses all the limitations of the claims, except:

- the prescribed luminous flux spectrum is made to emulate that of a beam of light produced by a predetermined light source having an incandescent lamp (as recited in claims 29, 32 and 43);
- the emulated incandescent lamp being free of a filter (as recited in claims 29 and 32);
- the composite beam of light having a prescribed luminous flux spectrum having a normalized mean deviation across the visible spectrum of less than about 30% relative to the luminous flux spectrum of a beam of light produced by a predetermined light source to be emulated (as recited in claims 29, 30, 32 and 43); and
- the composite beam of light and a predetermined light source to be emulated being within 5 db of each other across the visible spectrum when the controller supplies maximum electrical power to the LED groups (as recited in Claim 31).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to configure the illumination device of AMERSON et al. to produce the specific ranges (as recited in claims 29-32) featured by the instant invention, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only ordinary skill in the art. *In re Aller*, 105 USPQ 233. In this case, the patented device of AMERSON et al. is specifically designed to reproduce any flux spectrum as required for

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a particular application (see column 2, lines 28-37 and column 3, lines) or to simulate the flux spectrum of a given illumination source (see column 3, lines 14-16). Adjusting the LED groups to closely match the flux spectrum of the light source to be emulated would have flown naturally to one of ordinary skill in the art, as evidenced by Figure 6 of AMERSON et al..

Allowable Subject Matter

12. Claims 36-40 are allowed.
13. Claims 6, 7 and 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
14. Claim 27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
15. The following is a statement of reasons for the indication of allowable subject matter:

Applicant teaches an illumination device for producing a composite beam of light having a prescribed luminous flux spectrum emulating that of a beam of light produced by a predetermined light source, such device including at least five groups of illumination devices, each group being configured to emit light having a distinct

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luminous flux spectrum. In addition, no portion of the contiguous flux spectrum of the composite beam of light has a flux intensity more than 2 db lower than flux intensities at wavelengths both above and below it.

No prior art was found teaching individually, or suggesting in combination, all of the features of the applicants' invention, specifically the at least 5 illumination groups, or the claimed 2 db flux intensity deviation.

Relevant Prior Art

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Boewning et al. (U.S. Pat. 3,760,174), **Gismondi** (U.S. Pat. 5,961,201), **Pashley et al.** (U.S. Pat. 6,127,783) and **Börner et al.** (U.S. Pat. 6,234,645) disclose illumination devices having means for producing illumination having variable/adjustable spectrums.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ismael Negron whose telephone number is (571) 272-2376. The examiner can normally be reached on Monday-Friday from 9:00 A.M. to 6:00 P.M.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L. O'Shea, can be reached on (571) 272-2378. The facsimile machine number for the Art Group is (703) 872-9306.

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, go to <http://pair-direct.uspto.gov>. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) toll-free at 866-217-9197.


Inr

December 13, 2004


JOHN ANTHONY WARD
PRIMARY EXAMINER

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date:
November 10, 2003; April 22, 2004 and October 25, 2004

Continuation of Attachment(s) 6). Other: Copy of the Consolidated Patent Rules Section 41.202.